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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,239	08/17/2001	Christophe Pierrat	NMTI 1002-3	4845

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EXAMINER

MOHAMEDULLA, SALEHA R

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/932,239

Applicant(s)

PIERRAT ET AL.

Examiner

Saleha R. Mohamedulla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-95 is/are pending in the application.
- 4a) Of the above claim(s) 16-26, 61-79 and 90-95 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15, 38, 46-60 and 80-89 is/are allowed.
- 6) ☒ Claim(s) 27-37 is/are rejected.
- 7) ☒ Claim(s) 39-45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 IDS.
- ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

## **DETAILED ACTION**

### ***Election/Restriction***

1. The Applicant's election of claims 1-15, 27-60 and 80-89 is acknowledged. Because the Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 16-26, 61-79 and 90-95 are withdrawn from consideration.

### ***Information Disclosure Statements***

2. Some references are crossed out in the submitted IDS's as their citations do not include date and/or page information.

### ***Claims Objections***

3. Claims 39-45 are objected to for including informalities. These claims recite "the mask of claim 36" in the preamble. It appears that the claims should recite "the mask of claim 38" as claim 36 is drawn to an "article of manufacture." Correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 27-37 are rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,923,562 to Liebmann et al.

Liebmann teaches a method that automatically locates and eliminates the most frequently encountered phase conflict in phase edge phase shift mask (PSM) designs used in the manufacture of VLSI circuits. The process is implemented as an automatic CAD routine that locates and widens one leg of a three way intersection to avoid phase conflicts. CAD and design rule checking techniques are used to first locate and then to resolve design conflicts prior to actually executing the very time consuming phase shift mask design. The original circuit design is manipulated prior to or as part of the design rule checking, allowing the verification of the manipulations made prior to handing the design off to the mask layout and mask data preparation group (Abstract). Claims 27-37 are product-by-process claims. These claims are only materially limited by the structural features recited. The only structural features in the claims are a machine readable storage medium and a pattern of a mask including a plurality of phase shift features. Liebmann teaches these limitations.

***Allowable Subject Matter***

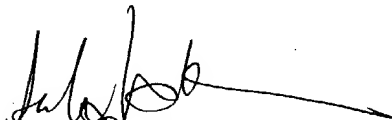
6. Claims 1-15, 38, 46-60 and 80-89 are allowed. Claims 39-45 are currently objected to but would be allowable if amended in accordance with the Examiner's suggestion to correct the objection. The prior art does not teach or suggest identifying cutting areas for phase shift regions based upon the pattern characteristics and assigning phase values to phase shift windows in the phase shift regions by cutting the phase shift regions in selected ones of the cutting areas to define the windows. The prior art also does not teach or suggest that the boundaries of the phase shift windows lie within cutting areas that are defined based upon characteristics of the pattern. The prior art also does not teach or suggest the identifying a plurality of cutting areas indicating

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locations where a phase shift region in the plurality of phase shift regions can be divided into phase shift windows, ranking the cutting areas, assigning phase values to the windows by selectively using the cutting areas and ranking to resolve the phase conflicts and generating a second representation.

*Conclusion*

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Saleha Mohamedulla whose telephone number is (571) 272-1387. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Saleha R. Mohamedulla  
Patent Examiner  
Technology Center 1700  
January 26, 2004